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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,447	01/13/2004	Shuya Shinohara	TAN-331	1085

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EXAMINER

SELLERS, ROBERT E

ART UNIT PAPER NUMBER

1712

DATE MAILED: 08/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/755,447	Applicant(s) SHINOHARA ET AL.	
	Examiner Robert Sellers	Art Unit 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 08 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 5 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The 35 U.S.C. 112, first and second paragraphs, rejections have been resolved by suggestion in the non-Final rejection mailed March 14, 2006 (page 3, paragraph 3) of the repositioning of general formula (1) after the description of its reaction with an epihalohydrin and the separate definition of R_5 and R_6 therein on pages 3-4 of the specification and claim 1.

The text of section 103(a) of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartmann Patent No. 4,153,621.

Claims 1, 2, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. Patent No. 7,063,914 (the patent of Publication No. 2003/0175571) in view of Hartmann.

The rejections are maintained for the reasons of record set forth in the non-Final rejection. The arguments filed August 8, 2006 have been considered but are unpersuasive.

2. Nowhere in Hartmann et al. is there any requirement that the polymerized diglycidyl ether of 3,3',5,5'-tetraalkyl-4,4'-dihydroxybiphenyl (cols. 3-4, first general structure) has to be crystalline. Hartmann et al. contemplates diglycidyl ethers with higher values of n and higher epoxy equivalents (col. 3, lines 38-41).

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The suitability of chain-extended diglycidyl ethers of tetraalkylbiphenyl to produce higher molecular weight prepolymers indicates the lack of aversion to species of high epoxy equivalent to over the claimed minimum of 250 g/eq.

3. Example 1 (col. 9, line 68) produces a diglycidyl ether of 3,3',5,5'-tetramethylbiphenol having an epoxide equivalent of 272.

4. The criterion for distinguishing the flexibility of the diglycidyl ether of tetramethylbisphenol F shown in Kawano et al. (col. 7, lines 59-61, YSLV-80XY, represented by Comparative Example 3 in the specification on page 15, lines 6-9 and page 16, Table 1) from that of the tetramethylbisphenol F-advanced diglycidyl ether of bisphenol F (pages 14-16, Example 8) is an Erichsen test result of bigger than 3 mm represented by "O" and a result of not bigger than 3 mm reflected by "X". The degree of difference in flexibility between Comparative Example 3 and Example 8 cannot be determined by such broad evaluation parameters. For example a result of 3.1 mm for Example 8 as compared to 3.0 for Comparative Example 3 would be an insignificant difference.

5. The diglycidyl ether of tetramethylbisphenol F of Reference Example 1 (pages 10-11, YSLY-80XY) was heated to fuse the crystal, blended with additional diglycidyl ether of tetramethylbisphenol F and recrystallized. It is unclear why the original YSLY-80XY epoxy resin was manipulated to ascertain the content of n=0 of 90% and whether such further treatment of the original epoxy resin affected the measurement of the level of n=0 monomer.

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6. The advancement of a diglycidyl ether of tetramethylbisphenol F such as that of Kawano et al. with a chain extending agent such as the aromatic dihydroxy compounds set forth in Hartmann et al. (col. 5, line 38) yields diglycidyl ethers of tetramethylbisphenol F wherein "n" in formula (1) depicted in column 2, lines 26-40 of Kawano results in values of as high as 15, thereby falling within the claimed epoxy equivalent of at least 250 g/eq. The presence of chain-extended tetramethylbisphenol F structures within the diglycidyl ether of tetramethylbisphenol F would inherently reduce the rigidity of the monomeric structure, thereby resulting in an expected increase in flexibility.

7. It would have been obvious to raise the molecular weights of both the diglycidyl ether of tetraalkylbiphenyl of Hartmann et al. and the diglycidyl ether of tetramethylbisphenol F of Kawano et al., both within the teachings of the references, in order to take advantage of properties endemic to higher molecular weight species. Neither patent is averse to the preparation of higher molecular weight species as expressly disclosed therein.

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THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).



Robert Sellers
Primary Examiner
Art Unit 1712